

Supplementary Material

Mo-doped ZnO nanoflakes on Ni-foam for asymmetric supercapacitor applications

Awais Ali ^a, Muhammad Ammar ^{a,b,*}, Muddassir Ali ^c, Zaid Yahya ^a, Muhammad Yasar Javaid ^d, Sadaf ul Hassan ^e, Toheed Ahmed ^{b,f}

^a Department of Chemical Engineering Technology, Government College University, Faisalabad 38000, Pakistan.

^b University of Chinese Academy of Sciences, Beijing, 100049, China.

^c Department of Energy Engineering, Faculty of Mechanical and Aeronautical Engineering, University of Engineering and Technology, Taxila 47080, Pakistan.

^d Department of Mechanical Engineering Technology, Government College University, Faisalabad 38000, Pakistan.

^e Department of Chemistry, COMSATS University, Islamabad, Lahore Campus 45550, Pakistan.

^f Department of Applied Chemistry, Government College University, Faisalabad 38000, Pakistan.

* Corresponding author: mammar@gcuf.edu.pk (M. Ammar), Tel/Fax: +92419203027

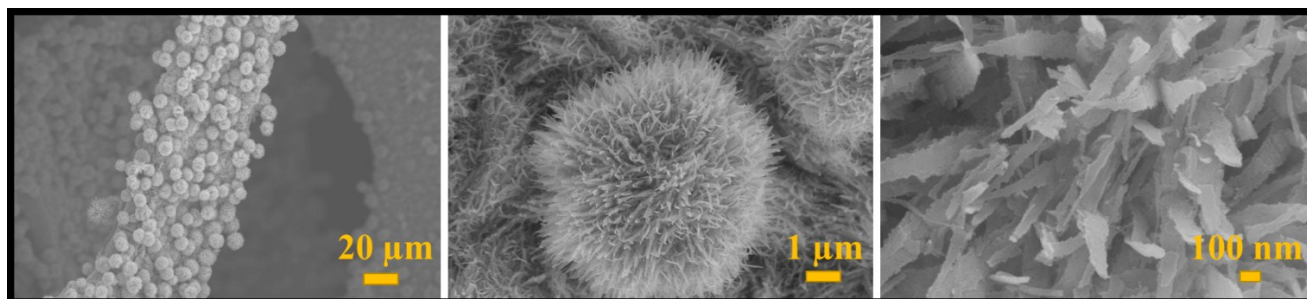


Fig. S1 SEM images of ZnO at different magnifications.

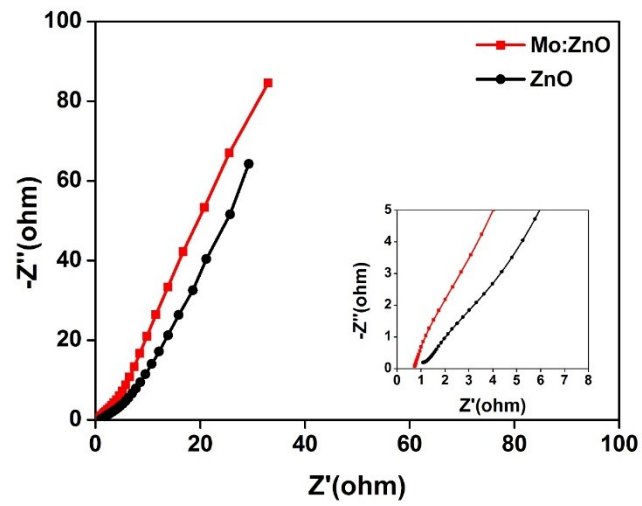


Fig. S2 Nyquist plot of Mo:ZnO and ZnO in 3M KOH.

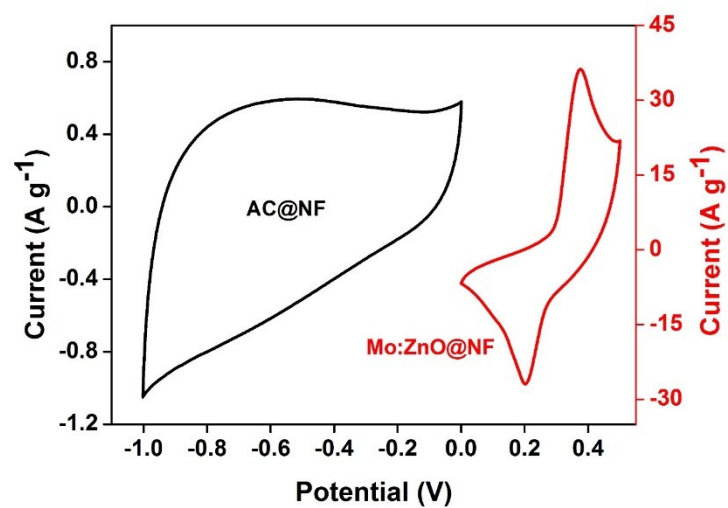


Fig. S3 CV curves of AC@NF and Mo:ZnO in a 3M KOH electrolyte at 10 mV s⁻¹ scan rate.

Table S1. Comparison of several metal oxide reported as supercapacitor electrode materials in the literature and this study

Electrode	Electrolyte	Current density	Scan rate (mV s⁻¹)	Specific capacitance/ Capacity	Ref.
G-ZnO@GC	6 M KOH	-	5	122.4 F g ⁻¹	1
ZnO@GF	2 M KOH	1 A g ⁻¹	-	400 F g ⁻¹	2
G-ZnO	1 M KCl	-	2	146 F g ⁻¹	3
ZnO/rGO	1M Na ₂ SO ₄	-	10	95 F g ⁻¹	4
3D G-ZnO	1 M KOH	-	5	554 F g ⁻¹	5
ZnO-MnO ₂	1M Na ₂ SO ₄	0.5 A g ⁻¹	-	423 F g ⁻¹	6
ZnOAu-MnO ₂	0.1M Na ₂ SO ₄	2.6 A g ⁻¹	-	478 F g ⁻¹	7
MnO ₂ -ZnO	0.1M Na ₂ SO ₄	-	2	571 μF cm ⁻²	8
Core-shell ZnO-NiO	1 M KOH	5 mA cm ⁻²	-	4.1 F cm ⁻²	9
ZnO-NiO	1 M KOH	5 mA cm ⁻²	-	0.5 F cm ⁻²	9
ZnO-NiO	3 M KOH	-	5.8	649 F g ⁻¹	10
Mo:ZnO	3 M KOH	1	-	2,296 F g ⁻¹	This work

Table S2. Comparison with other Zinc oxide-based supercapacitor devices

Electrode	Electrolyte	Current density/scan rate	Specific capacitance	Capacitance retention	Energy density @ Power density	Ref.
ZnO/C//ZnO/C	1M Na ₂ SO ₄	2.5 A g ⁻¹	92 F g ⁻¹	92% after 400 cycles	32 Wh kg ⁻¹ @1000 W kg ⁻¹	11
ZnO NC//AC	1M KOH	1.33 A g ⁻¹	126 F g ⁻¹	62.5% after 5,000 cycles	25.2 Wh kg ⁻¹ @896.4 W kg ⁻¹	12
MRGO/ZnO	1M Na ₂ SO ₄	1 A g ⁻¹	201 F g ⁻¹	93% after 3,000 cycles	4.33 W h kg ⁻¹ @8.3 W kg ⁻¹	13
G/ZnO	1M KOH	10 mV s ⁻¹	236 F g ⁻¹	90% after 200 cycles	11.8 W h kg ⁻¹ @42 W kg ⁻¹	14
CZO/PANI//CZO/PANI	1M H ₂ SO ₄	-	-	-	28.88 W h kg ⁻¹ @694 W kg ⁻¹	15
Mo:ZnO@NF//AC@NF	3M KOH	1 A g ⁻¹	125 F g ⁻¹	75% after 8,000 cycles	39 Wh kg ⁻¹ @778 W kg ⁻¹	This work

References

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